

Appln. No. 10/048,013  
Amd. dated June 11, 2007  
Reply to Office Action of March 12, 2007

### **Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

1 (Currently amended). An *in vitro* process for increasing spermatozoa motility and separating the spermatozoa, comprising:

treating human seminal liquid comprising spermatozoa from an oligospermic, asthenospermic, teratospermic or oligoasthenospermic patient ~~for up to two hours~~ with an amount of 2-(4-morpholinyl)-8-phenyl-4H-1-benzopyran-4-one (LY294002), a phosphatidylinositol-3 kinase (PI3K) inhibitor, sufficient to increase spermatozoa motility, thereby increasing spermatozoa motility ~~during the up to two hours of treatment~~; and

separating the treated spermatozoa by spermatozoa separation methods used in assisted reproduction techniques (ART).

Claims 2 and 3 (Cancelled)

4 (Previously Presented). Process according to claim 1, wherein separating the spermatozoa is performed by a method

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selected from the group consisting of the wash and spin method, the sedimentation method, the direct swim-up method, the pellet and swim-up method, and the buoyant density gradient method.

5(Original). Process according to claim 4, wherein separating the spermatozoa is performed by the direct swim-up method.

Claims 6-8 (Cancelled).

9(Currently amended). Process according to claim 1, wherein spermatozoa are treated with an amount of ~~PI3K~~ ~~inhibitor~~ LY294002 in the range of about 0.01 to 1000  $\mu$ M, about 5 to 500  $\mu$ M, or about 10 to 100  $\mu$ M.

Claims 10 and 11 (Cancelled)

12(Previously presented). Spermatozoa obtainable by the process according to claim 1.

Claims 13-18 (Cancelled)

19(Currently amended). Method of ART therapy, comprising treating the spermatozoa of claim 12 with LY294002, a phosphatidylinositol-3 kinase (PI3K) inhibitor.

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20 (Previously presented). Method according to claim 19, wherein ART therapy is selected from the group consisting of *in vitro* fertilization (IVF) gamete intrafallopian transfer (GIFT), and intrauterine insemination (IUI).

Claims 21-29. (Cancelled)